

# DESIGN AND CONSTRUCTION GUIDELINES AND STANDARDS

DIVISION 7 • THERMAL & MOISTURE PROTECTION

## 07 40 00 • SIDING

### SECTION INCLUDES

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### GENERAL DESIGN CONSIDERATIONS

The type of siding recommended for each project depends on whether the building is in a family or elderly development or for special needs housing.

Family Developments usually require more impact resistant siding due to severe use. Fiber cement siding or wood siding is preferred although vinyl or polypropylene siding may be acceptable in certain locations.

Elderly Developments vinyl or polypropylene siding is preferred because vandalism is usually not a concern.

Special Needs Housing vinyl siding is preferred unless wood siding is required in order for the house to blend into the neighborhood.

Older buildings may also require wood siding due to the amount of existing siding to remain or requiring repair/replacement. Wood siding usually requires more maintenance and should only be used where the housing authority is able to implement preventative maintenance of the siding.

Siding replacement on existing buildings is often combined with other building exterior envelope projects such as, window replacement and roof replacement, therefore details that show how the many components fit together are extremely important.

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### INVESTIGATION AND RESEARCH

Fully Investigate and Document:

- ☐ Verify how level the existing building sills are to receive the new siding material.
- ☐ Verify the type of sheathing that is on the building. Some buildings may have gypsum board sheathing and rigid insulation which makes the attachment of new siding more difficult.
- ☐ Verify the condition of the existing exterior sheathing and determine if selective or complete replacement is required.
- ☐ If the building has fiberboard sheathing it should be replaced with new plywood or OSB sheathing.
- ☐ Check to see if there are more than one layer of siding and test existing wood siding to see if it contains Lead Based Paint which will need to be removed according to 454 CMR 22.00.
- ☐ Verify if the existing shingles are asbestos and consider cleaning and selective replacement with new fiber cement shingles in lieu of complete removal.
- ☐ Verify that the existing exterior wall has sufficient insulation to provide an overall R-value of the exterior to meet the current energy requirements of the Massachusetts Building Code. Take test cuts if necessary.
- ☐ If termite protection is needed use copper flashing over sill plates.
- ☐ Install flashing and water proofing around windows and doors and use metal flashing for trim pieces. Cap flashing is recommended for any horizontal trim.
- ☐ Check the condition of the existing electrical service banks.
- ☐ Verify the location of the existing cable TV and telephone service and talk to these companies early to remove and reinstall these connections during the installation of the new siding materials. Sometimes these utilities will use a new siding installation as an opportunity to upgrade the service to the buildings.
- ☐ Verify the location of existing building numbers and mailboxes which will need to be removed and reinstalled or replaced after the new siding is installed.
- ☐ Check for mold and mildew on the exterior siding of the building and check condition of gutters, downspouts, splash guards and closeness of vegetation to building.

As part of their building code analysis the Designer should document that the new siding and exterior wall construction will meet the R value required in the Massachusetts Building Code. Rigid insulation should be installed with new vinyl siding.

Rain-screen type installation of wood and cement siding is recommended by certain manufacturers to prevent moisture from penetrating into the exterior sheathing and wall cavity due to air pressure and capillary action. Nylon matrix rolls such as Home Slicker & Cedar Breather by Benjamin Obdyke,

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Raindrop Housewrap by Green Guard and pressure treated wood strapping are acceptable products to provide a rainscreen for exterior wall systems.

#### Vinyl & Polypropylene Siding

#### MATERIALS

Choose premium quality solid vinyl with flat low-gloss finish. Non-embossed patterns are easier to keep clean.

In selective applications polypropylene siding such as Cedar Impressions by CertainTeed and Roughsawn Cedar by Nailite may be used if the desired appearance is to copy wood shingles.

Smooth finish, prefabricated vinyl covered aluminum or enameled aluminum are both acceptable for rakes, fascias, and window trim.

Composite PVC trim, corner boards are a maintenance free option.

Prefinished aluminum coil stock corner boards are NOT acceptable. PVC corner boards are preferred with vinyl siding. Install PVC trim with hand nailed flush stainless steel white head nails

Wood is not recommended as trim material since it requires periodic painting or staining.

Painted wood siding is expensive to maintain over time.

Avoid gypsum wallboard sheathing with rigid insulation.

Use beadboard pattern vinyl for porch ceilings- 6" wide panels are less likely to sag.

Use vinyl J-channel "block-outs" for penetrations such as light fixtures, hose bibs, dryer vents, etc.

#### DESIGN

3½-4 inch exposure (triple three) is preferred for both structural stability and an appearance that closely resembles wood clapboards.

Avoid vinyl siding with molded imprints, such as wood grain. Such imprints trap dirt and provides an environment for mildew.

Use vinyl accessories to provide structural stability, help the installation stand up to wear, and to provide visual interest.

Minimize horizontal pattern changes, since the J-bead connections between them are particularly subject to wind stress.

Details must be carefully designed and shown in contract documents; provide details that minimize the use of caulking,

**Do not** leave details up to the installer in the field, results will be disappointing.

Corner beads, rakes, fascias, vented soffits, as well as door and window trim clad in aluminum and/or vinyl help to reduce maintenance costs. Consider using composite PVC trim and corner boards. Acceptable manufacturers of PVC composite trim are Azek, Klear Lumber.

Celuka PVC, which is made by some manufacturers, is not recommended.

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Avoid aluminum brake metal on corner boards. Extruded aluminum also has some jointing problems.

When combining vinyl siding with vinyl window installations consider using vinyl trim kits that are available from the window manufacturer.

#### Vinyl & Polypropylene Siding, Con't

#### EXECUTION

Follow installation requirements set forth by the manufacturer and/or the Vinyl Siding Institute.

Including:

Separate joints by at least two courses

Avoid joints above and below windows

Never use pieces under 2 feet long, except

Use short pieces for fitting at narrow openings and between windows, short pieces are best used under shutters at the location of the shutter fastener.

Never fasten things to the vinyl, always fasten to something solid behind

Allow for expansion and contraction.

Install PVC trim with hand nailed flush stainless steel white head nails.

#### Wood Clapboards

#### MATERIALS

Red cedar is preferred over white cedar.

Pine or mahogany are not acceptable, however prefinished Lodgepole pine siding using a factory applied stain such as Cape Cod Siding has been used with some success in combination with a rainscreen system. The product may warp on the sides of the building with a Southern exposure.

Prefinished wood siding with 30 year finish warranties are available. In certain applications these may be acceptable if they can be bid without using a proprietary specification.

Select kiln-dried bevel siding, VG grade or better, clapboards may include mixed grain and limited characteristics and occasional cut-outs in longer pieces. Knots are unacceptable.

#### DESIGN

The maximum exposure is 4 inches to the weather. A minimum 1 inch overlap on plain bevel siding is recommended.

Do not nail wood siding over rigid foam board; to install wood clapboards with foam board install furring strips to provide a rain screen system.

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### Wood Clapboards Con't

#### EXECUTION

To minimize dimensional change after shrinkage, install siding at a moisture content that matches the local climate as closely as possible. The material should be stored on site and protected for a week to ten days prior to application.

Back-prime all sides, edges, and ends. Specify field touch up of all cut edges

Use hot-dipped galvanized or ring shank stainless steel, 6d siding nails.

Existing wood clapboards that are to remain should be power washed prior to restaining to remove dirt, mold and loose paint/stain. Care must be taken not to damage existing wood clapboards by using excessive pressure during power washing.

### Wood Shingles

#### MATERIALS

Wood cedar shingles are not recommended unless matching or repairing existing buildings with wood siding

Red cedar is preferred to white cedar because it is more resistant to curl, ages better, and is more thermally stable.

Use only number 1 blue label cedar shingles only as designated by the Cedar Shake and Shingle Bureau. [www.cedarbureau.org](http://www.cedarbureau.org)

Sawn red cedar is acceptable (see execution requirements below).

White cedar (predipped) is acceptable if it is used to match the surrounding context. (Extra Clear Grade A). Shingles should be fully dipped, preferably at the factory. Several manufacturers provided fully dipped shingles including Maibec.

Panelized shingles are not recommended because of premature failure.

Stain is preferable to paint.

#### DESIGN

The maximum exposure for white cedar is 5 inches to the weather, 6 inches for red cedar.

Use corner boards for a more durable installation.

Nail shingles directly to plywood over insulating sheathing.

#### EXECUTION

Power wash existing wood shingles to remove dirt and loose paint/stain before applying new stain. Care must be taken not to damage existing wood shingles by using excessive pressure during power washing. It will be beneficial to have a contractor do a sample area before doing a large area .

Space sawn red cedar shingles 1/8 inch apart.

Restaining within a year after installation will prolong the life of the shingles. Make restaining a part of the construction contract or ensure that funds will be available for the LHA to do it.

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### Fiber Cement Siding

#### MATERIALS

There are several manufacturers of fiber cement siding shingles and clapboards. Third party prefinishing with solid stain is available along with a 15 year warranty from the paint applicator.

This product is only recommended in areas of severe use/impact because of its high initial cost. Some manufacturers of fiber cement recommend using a rainscreen system installation with their product.

Trim products are available prefinished made of the same fiber cement but DHCD experience with such products has been disappointing and cannot be recommended at this time.

#### DESIGN

4" maximum exposure is preferred for both structural stability and an appearance that closely resembles wood clapboards.

Fiber Cement can be installed directly on sheathing or using furring strips for a rain screen type application. There are several manufacturers of fiber cement siding including James Hardie, CertainTeed and Nichiha.

Details must be carefully designed and shown in contract documents; provide details that MINIMIZE the use of caulking.

DO NOT leave installation details up to the installer in the field, results will be disappointing.

Use only ¾" and 5/4" fiber cement corner board and avoid 7/16" corner board due to warping.

#### EXECUTION

Follow installation requirements set forth by the manufacturer.

Prefinished fiber cement siding must be stored properly to prevent boards from getting wet and freezing to each other which can remove the finish.

Specifying an additional finish coat in the field will produce more favorable results but may be cost prohibitive.

### MOLDED WOOD/RESIN BOARD & HARDBOARD SIDING

DHCD has had a number of disappointing experiences with hardboard and molded wood/resin siding. Therefore, we do not recommend its use.

However, If it must be used give extra special consideration to:

- ☐ Expansion and contraction,
- ☐ Corners, window and door details,
- ☐ Color selection, some colors fade more dramatically and matching color years later becomes extremely difficult.

